

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : Chen et al. Art Unit : 1792  
Serial No. : 10/732,966 Examiner : Sylvia R. MacArthur  
Filed : December 10, 2003 Conf. No. : 9309  
Title : RETAINING RING WITH SLURRY TRANSPORT GROOVES

**Mail Stop Appeal Brief - Patents**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

REPLY BRIEF

Pursuant to 37 C.F.R. § 41.41, Applicant responds to the Examiner's Answer as follows.

At page 2, lines 1-3, the Examiner argues that "Chen et al illustrates that . . . the height of at least one of the vertical sidewalls is substantially same as a height of the ledge." However, as the Examiner appears to acknowledge at page 2, line 5, Chen does not teach a ledge. Therefore, it cannot be that Chen teaches that the height of a sidewall is equal to the height of the ledge.

At page 3, lines 6-8, the Examiner states, as evidence of motivation to combine the references, that "applicant recites on page 6 lines 18-23 that the reason for providing a ledge is to permit the retaining ring to mate with the carrier head." However, Applicant respectfully points out that the section of Applicant's specification relied upon by the Examiner refers to features that can be present on the "upper surface" of the retaining ring to permit the retaining ring to mate to the carrier head. Applicant does not claim a ledge on the upper surface of the retaining ring. Rather, Applicant's claims recite a ledge on the "outer diameter surface."

At page 4, lines 15-18, the Examiner notes that having the height of at least one of the vertical side-walls be substantially the same as a height of the ledge, as claimed by the Applicant, "is interpreted as a matter of optimization that would be performed without undue experimentation at the time of the claimed invention." However, the Examiner has failed to address the argument set forth in Applicant's Appeal Brief at page 5, lines 11-18. Namely, as noted in the MPEP, "only result-effective variables can be optimized" for the purposes of an obviousness rejection. MPEP §§ 2141.02, 2144.05. The Examiner has not provided evidence that the height of the channel was known as a result-effective variable. Moreover, even if the height were a result-effective variable, design optimization would lead only to a particular height of the channel or ledge. Such optimization would not lead a person having ordinary skill in the

art to set the height of the channel equal to the height of the ledge, as required by Applicant's claims.

At page 8, line 21 through page 9, line 2, the Examiner argues that having the height of at least one of the vertical side-walls be substantially the same as a height of the ledge, as claimed by the Applicant, would "ensure that the flow of slurry through the channels of the ring ... would not be impeded and thus accumulated with the addition of the ledge." However, that the Examiner has cited no evidence or provided any line of technical reasoning as to why the addition of the ledge would affect the flow of slurry. Furthermore, the Examiner has not shown how setting the heights equal, as required by Applicant's claims, would affect fluid flow.

At page 9, lines 3-5, the Examiner states that she has "noted appellant's arguments regarding the direction of forces on pages 4 and 5, but hopes that the marked up copy of Figure 5 of Hosoki has clarified how the retaining ring of Chen et al or Glashauser would be modified by the ledge of Hosoki et al." The Applicant respectfully notes, however, that the marked up copy of Figure 5 on page 2 of the Examiner's answer does not illustrate any direction of the forces or otherwise clarify the Examiner's reasoning from the Final Office Action that having sidewalls flush with the ledge would provide uniform support/treatment of the wafer.

Finally, the Applicant notes that there is indeed *no* technical reason to set the heights equal based upon the cited references. In fact, if the height of the slurry channels were equal to the height of the ledge shown by Hosoki, then the channels would have to extend nearly all the way to the top of the retaining ring (see FIG. 5 of Hosaki). Such a set-up would both make the retaining ring unstable and could interfere with connecting screws 33a. Therefore, a person having ordinary skill in the art would not modify the teachings of Chen or Glashauser to both use Hosoki's ledge and to set the height of the vertical side-walls to be substantially the same as a height of Hosaki's ledge.

For at least these reasons, and the reasons stated in the Appeal Brief, Applicant submits that the final rejection should be reversed.

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Respectfully submitted,

Date: October 5, 2009 \_\_\_\_\_

/David Goren/ \_\_\_\_\_

David J. Goren

Reg. No. 34,609

Fish & Richardson P.C.  
500 Arguello Street, Suite 500  
Redwood City, California 94063  
Telephone: (650) 839-5070  
Facsimile: (877) 769-7945

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